

Historic, Archive Document

Do not assume content reflects current
scientific knowledge, policies, or practices.

JD 224
W2W37
c. 3

5



United States
Department of
Agriculture

Soil
Conservation
Service

Spokane,
Washington



Washington Water Supply Outlook

MARCH 1, 1989

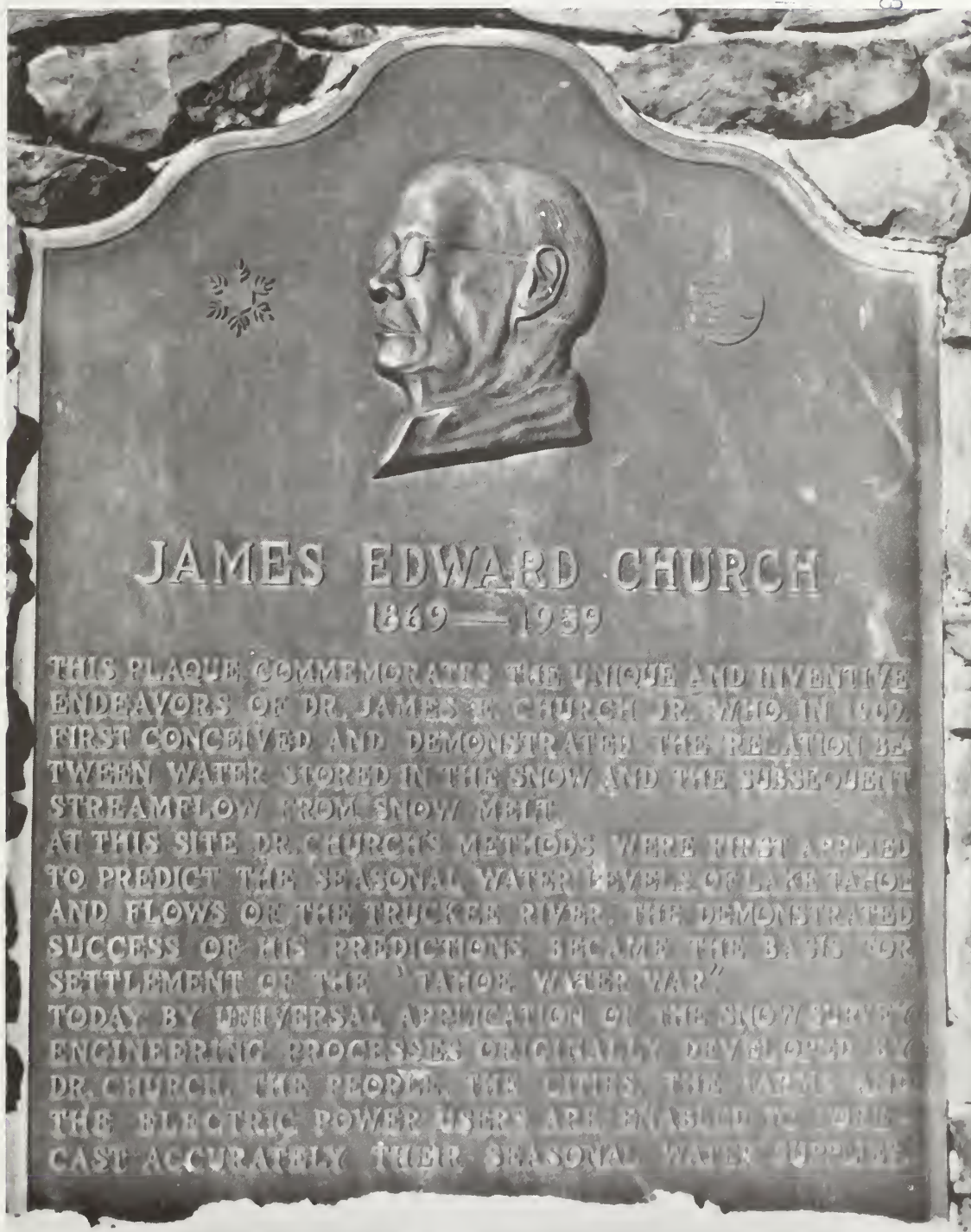
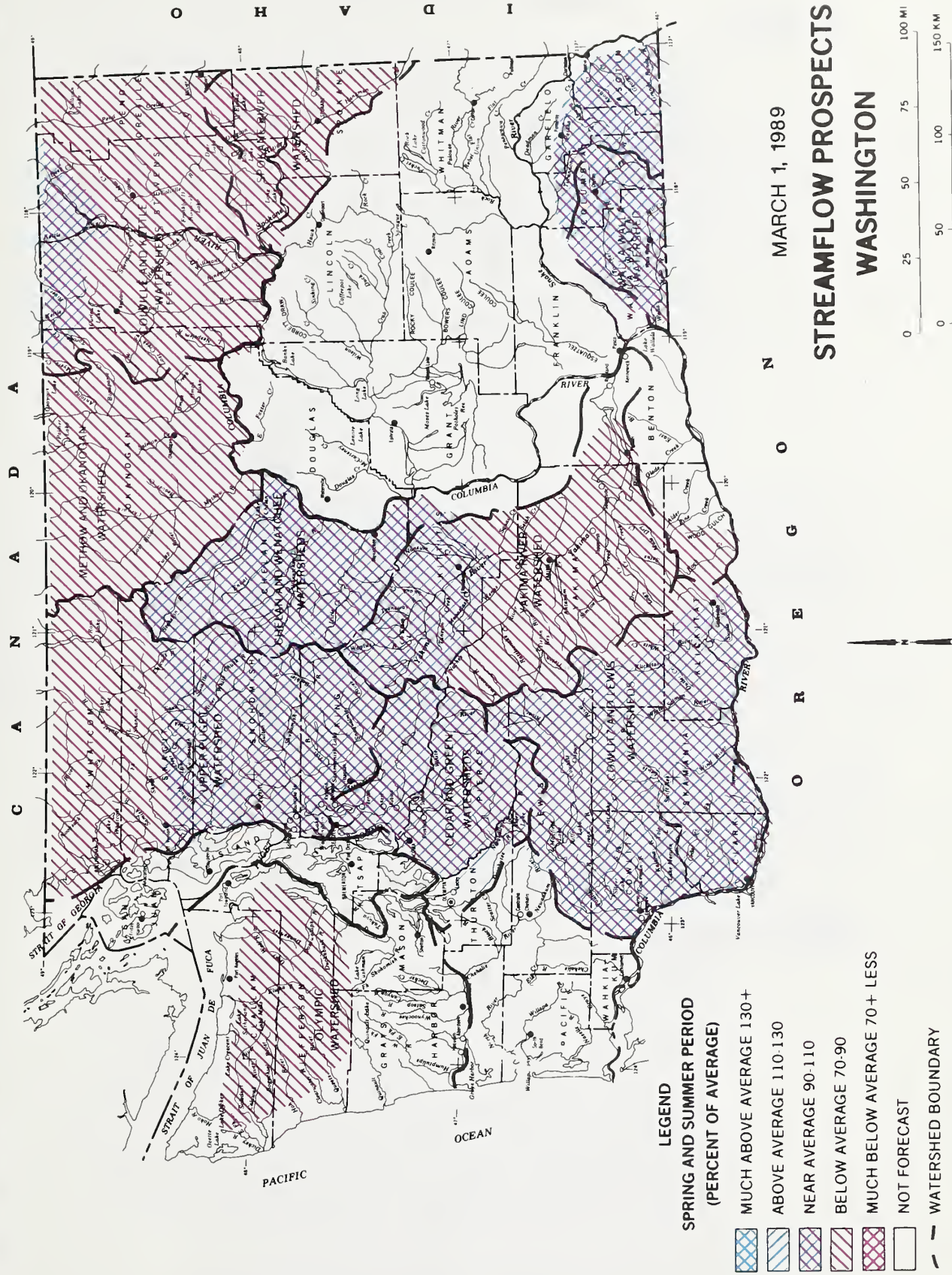


TABLE OF CONTENTS

STATE STREAMFLOW PROSPECTS MAP	1
STATE GENERAL OUTLOOK	2
BASIN OUTLOOK AND CONDITIONS	
SPOKANE	4
COLVILLE AND PEND OREILLE	6
OKANOGAN AND METHOW	8
WENATCHEE AND CHELAN	10
YAKIMA	12
WALLA WALLA	14
COWLITZ AND LEWIS	16
WHITE - GREEN	18
NORTH PUGET SOUND	20
OLYMPIC	22
SNOW DATA	24



SOURCE: Data compiled by SCS
Field Personnel

JANUARY 1986 4-R-39641
BASE 4-R-39260

GENERAL OUTLOOK

SUMMARY:

RESERVOIR STORAGE REMAINS BELOW NORMAL AT THE MAJOR IRRIGATION PROJECTS THROUGHOUT THE STATE, WITH THE RESERVOIRS IN THE YAKIMA BASIN 78% OF NORMAL. MARCH STREAMFLOWS WERE BELOW AVERAGE AND VARIED FROM 27% OF NORMAL ON THE SPOKANE RIVER TO 85% FOR THE CHELAN RIVER AT CHELAN. COLD DRY WEATHER COVERED WASHINGTON DURING THE FIRST TWO WEEKS OF THE MONTH. SNOWPACK, AS A PERCENT OF NORMAL, DECLINED OVER THE STATE AND VARIED FROM 120% IN THE WALLA WALLA TO 77% IN THE OLYMPIC BASIN. PRECIPITATION WAS BELOW NORMAL OVER MOST OF WASHINGTON FOR FEBRUARY WITH ONLY THE WALLA WALLA AND THE OKANOGAN ABOVE AVERAGE. RUNOFF FOR 1989 IS FORECASTED TO BE AVERAGE OVER MOST OF WASHINGTON. THESE FORECASTS VARY FROM 105% ON THE LEWIS RIVER TO 77% ON AHTANUM CREEK. TEMPERATURES WERE BELOW NORMAL DURING FEBRUARY WITH THE OKANOGAN FIVE DEGREES BELOW NORMAL AND THE SPOKANE BASIN 11 DEGREES BELOW.

NOTE: THE TERMS "NORMAL" AND "AVERAGE" AS USED IN THIS PUBLICATION, ARE THE SAME.

SNOWPACK:

Temperature averaged 7 degrees below normal over the state during February. Snowpack averages decreased in most areas of Washington during February. The Walla Walla Basin at 120% of average remained the best. Along the west slopes of the Cascade Mountains, the Lewis-Cowlitz Basin was 96% down from 103% and the White-Green Basin was 98% down from 107%. The Eastern slopes of the Cascade Mountains are lower with the Yakima Basin and the Chelan at 85% of normal. Maximum snow cover is at the Cayuse Pass snow pillow with 67.6 inches of water content on the ground. This site normally would have 67.0 inches of water content.

PRECIPITATION:

Precipitation was below normal over most of Washington for February. The Okanogan-Methow, and the Walla Walla were the only basins with above average precipitation at 134% and 116% of normal. Some of the below normal basins were the SPOKANE at 46%, the Colville-Pend Oreille at 82%, and the Chelan at 57% of normal. Some values in the West Cascade Basins include North Puget at 38%, White-Green at 56% and the Olympic at 54%. SNOTEL sites in Washington showed the high elevation year-to-date precipitation values to be 86% of average, down from 95% last month.

RESERVOIRS:

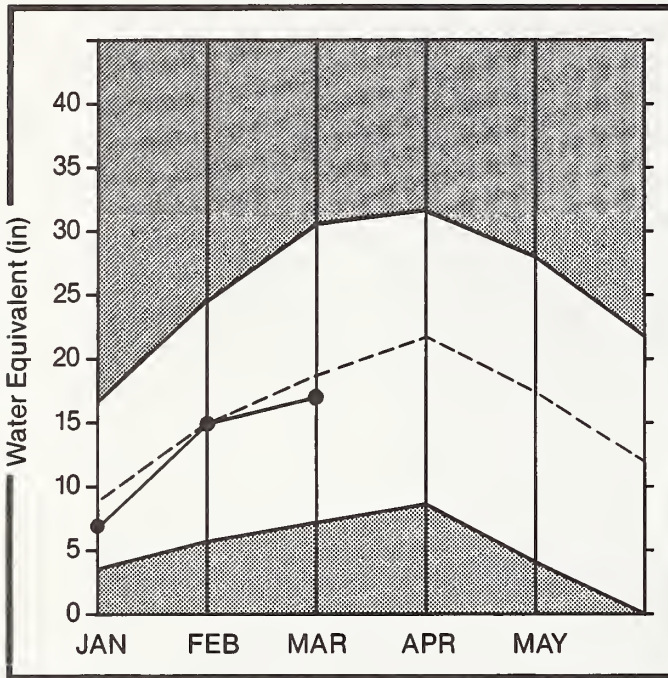
March 1 reservoir storage in the Yakima Basin was 542,600 acre feet, 78% of average, up from 495,100 acre feet, 77% of average. Other major reservoir storage include Roosevelt at 36% of normal, down from 45% last month. Banks Lake is at 111% and the Okanogan reservoirs remained at 104% of March 1 average. The power reservoirs contain the following: Coeur d'Alene Lake 91,200 acre feet or 41% of normal, Chelan Lake 239,300 acre feet at 142%, up from 72% last month, and Ross Lake at 559,900 acre feet, 182% of average.

STREAMFLOW:

The reduced percent of normal snowpack and below average precipitation have caused a reduction in most forecasts around Washington. March 1 streamflow forecasts vary from 105% in the Lewis River to 77% in Ahtanum Creek. Forecasts for some west side streams include: Cedar River 100%, Skagit River 83%, down from 95% last month and the Dungeness River 84%. Some east side streams include the Yakima River at Cle Elum 86%, the Methow River 85% and the Wenatchee River 91% down from 103% last month. February streamflows were below normal in most areas of Washington, continuing a trend established during the preceding summer. Streamflow varied from 27% on the Spokane River and the maximum of 85% from the Chelan River. On the west side of the Cascade Mountains, runoff from the Chehalis was 61%, the Skagit 60% and the Skykomish 39% of normal. The eastern slope of the Cascades runoff on the Yakima was 63% and the Okanogan at 63% of average. The Columbia River was 63% at the International Border and 60% below Priest Rapids.

SPOKANE

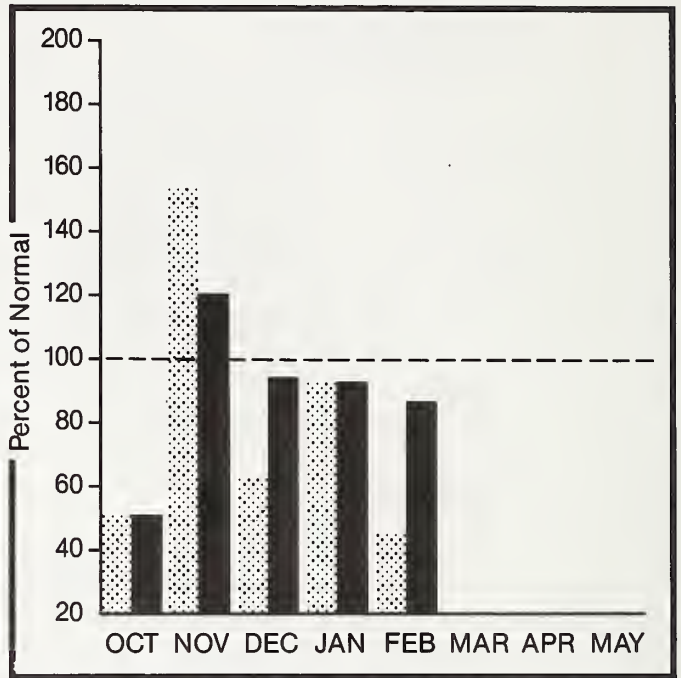
Mountain snowpack* (inches)



*Based on selected stations

Maximum Average Minimum Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation Year to date precipitation

SPOKANE RIVER BASIN

WATER SUPPLY OUTLOOK:

Forecasted runoff for the Spokane River Basin is 88% of normal for March 1. This forecast is based on a snowpack 88% of average and a water year-to-date precipitation value 85% of normal. Streamflow during February on the Spokane River was 27% of average at Spokane. March 1 storage in Coeur d'Alene Lake was 91,200 acre feet compared to 109,200 last month; average storage in Coeur d'Alene for March 1 is 220,900 acre feet. Precipitation for February was 46% of average. Maximum snow water again occurred at the Lost Lake snow course with 120 inches of snow with 41.0 inches of water content, March 1 average for this site is 48.9 inches. Temperatures averaged 11 degrees below normal during February.

For more information contact your local Soil Conservation Service office.

SPOKANE RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	WET SUBS. (1000AF)	DRY SUBS. (1000AF)	REAS. MAX. (1000AF)	REAS. MIN. (1000AF)	25 YR. AVG. (1000AF)
SPOKANE nr Post Falls (2)	APR-SEP	2420	86	2840	2030	3350	1490	2820
	APR-JUL	2340	86	2780	1900	3240	1440	2723
SPOKANE at Long Lake	APR-JUL	2620	86			3750	1490	3045

RESERVOIR STORAGE (1000AF)

WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	USEABLE STORAGE	THIS YEAR	LAST YEAR	AVG.	WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR. AVERAGE
COEUR D'ALENE	291.2	91.2	102.2	220.9		Spokane River	20	147 93

WET SUBS. and DRY SUBS. represent 150 and 50 percent subsequent precipitation events respectively.

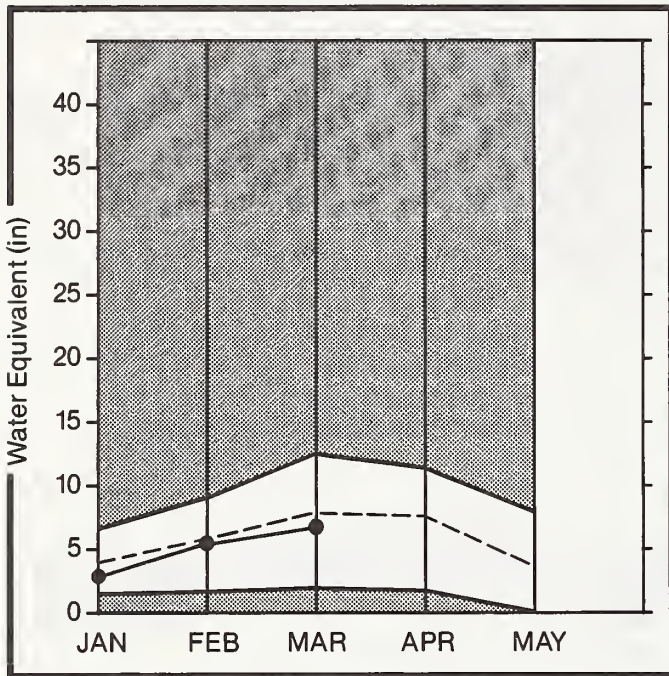
REAS. MAX. and REAS. MIN. forecasts are for 10% and 90% exceedance levels with the exception of (1) below.

(1) - REAS. MAX. and REAS. MIN. forecasts are for 5% and 95% exceedance levels.





(2) - Corrected for upstream diversions or changes in reservoir storage.

COLVILLE - PEND OREILLE

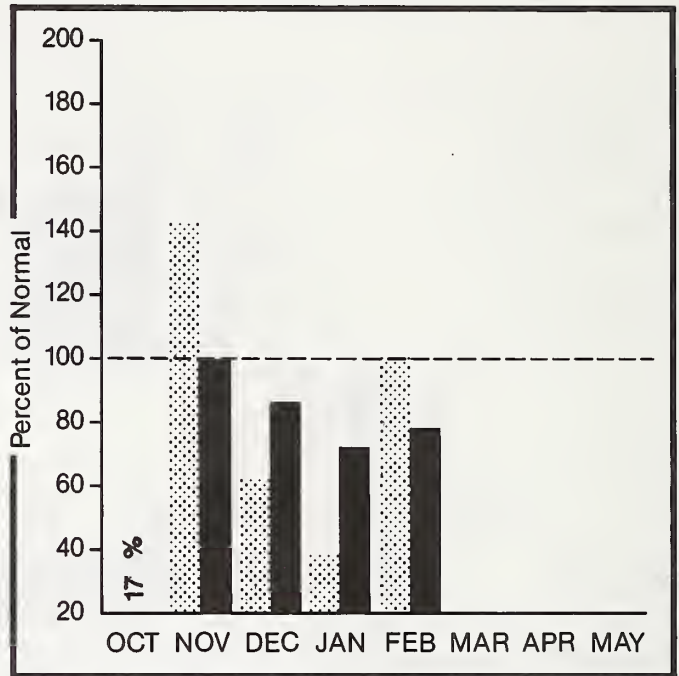
Mountain snowpack* (inches)





*Based on selected stations

Maximum  Average 
Minimum  Current 

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation  Year to date precipitation 

COLVILLE - PEND OREILLE RIVER BASINS

WATER SUPPLY OUTLOOK:

March 1 snow cover basin-wide is 86% of average, down from 92% last month. The forecast for the Pend Oreille River streamflow is 89% of normal for the summer. Other forecasts are the Kettle River, 92% and the Colville River at 88% of normal for the summer runoff period. Snowpack at Bunchgrass Meadow snow course was 66 inches of snow with 20.8 inches of water. Precipitation during February was 100% of average, bringing the water year-to-date to 78% of normal. Streamflows for February were 38% of average on the Pend Oreille River, 61% on the Kettle River and 63% on the Columbia River at the International Border. Temperatures averaged 11 degrees below normal for February.

For more information contact your local Soil Conservation Service Office.

COLVILLE - PEND OREILLE RIVER BASINS

STREAMFLOW FORECASTS

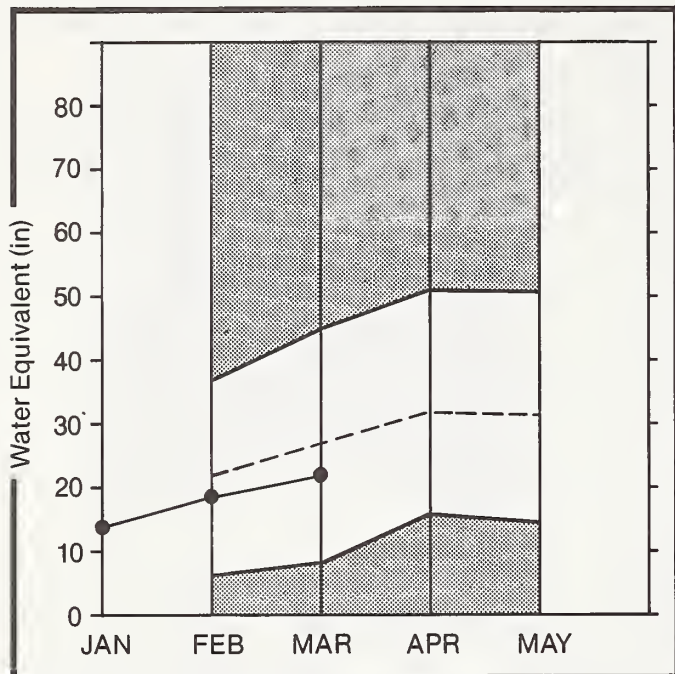
FORECAST POINT	FORECAST PERIOD	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	WET SUBS. (1000AF)	DRY SUBS. (1000AF)	REAS. MAX. (1000AF)	REAS. MIN. (1000AF)	25 YR. AVG. (1000AF)
PEND OREILLE b1 Box Canyon (2)	APR-SEP	13500	89			16700	10300	15170
	APR-JUL	12400	89			15200	9340	13900
	APR-JUN	10600	89			13100	8090	11960
CHAMOKANE CK nr Long Lake	MAY-AUG	7.8	85			12.3	3.3	9.2
COLVILLE at Kettle Falls	APR-SEP	122	88	132	112	190	54	139
	APR-JUL	113	88			176	50	128
	APR-JUN	104	88			162	46	118
KETTLE nr Laurier	APR-SEP	1750	92	1810	1690	2340	1180	1907
	APR-JUL	1660	92			2200	1120	1807
	APR-JUN	1490	92			1990	1000	1622
COLUMBIA at Birchbank (2)	APR-SEP	41800	94			47600	35600	44390
	APR-JUL	33400	94			38000	28400	35440
	APR-JUN	24100	94			27700	20500	25650
COLUMBIA at Grand Coulee Dam (2)	APR-SEP	61800	93			71800	51800	66460
	APR-JUL	52100	93			59900	43700	55730
	APR-JUN	40400	93			46500	34300	43420

RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS		
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVG.	WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR. AVERAGE
ROOSEVELT	5232.0	1005.9	3080.7	2768.0	Colville River	3	125 88
BANKS	715.0	674.8	661.5	666.0	Pend Oreille River	12	124 86
					Kettle River	8	124 88





WET SUBS. and DRY SUBS. represent 150 and 50 percent subsequent precipitation events respectively.
 REAS. MAX. and REAS. MIN. forecasts are for 10% and 90% exceedance levels with the exception of (1) below.
 (1) - REAS. MAX. and REAS. MIN. forecasts are for 5% and 95% exceedance levels.
 (2) - Corrected for upstream diversions or changes in reservoir storage.

OKANOGAN AND METHOW

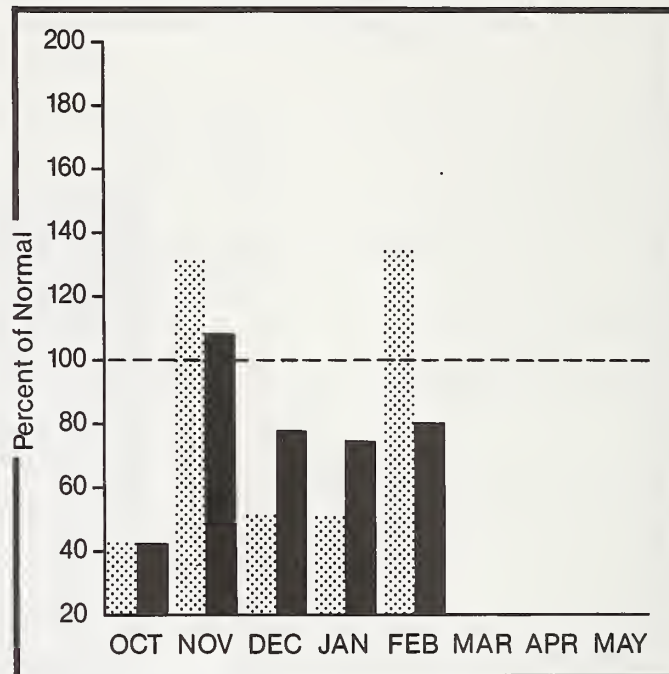
Mountain snowpack* (inches)





*Based on selected stations

Maximum  Average 
Minimum  Current 

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation  Year to date precipitation 

OKANOGAN - METHOW RIVER BASINS

WATER SUPPLY OUTLOOK:

Snow cover, as of March 1, is 80% of average on the Okanogan-Methow Basin. This is based upon measurements made at 33 snow courses and SNOTEL sites. February precipitation in the Okanogan-Methow was 134% of normal, with water year-to-date 81% of average. Temperatures were five degrees below normal for the month. Maximum snow water occurred at the Harts Pass SNOTEL, elevation 6500 feet, with 32.2 inches of water. Storage in the Conconully Reservoirs is 14,600 acre feet, which is 62% of capacity and 104% of March 1 average. Summer runoff forecasted for the Okanogan River is 76% of normal, down from 92% last month. The Similkameen River 77%, down from 96% last month and the Methow River is 85% of normal. Okanogan River streamflow was at 63% of average for February while the Similkameen River averaged 69%.

For more information contact your local Soil Conservation Service office.

OKANOGAN - METHOW RIVER BASINS

STREAMFLOW FORECASTS

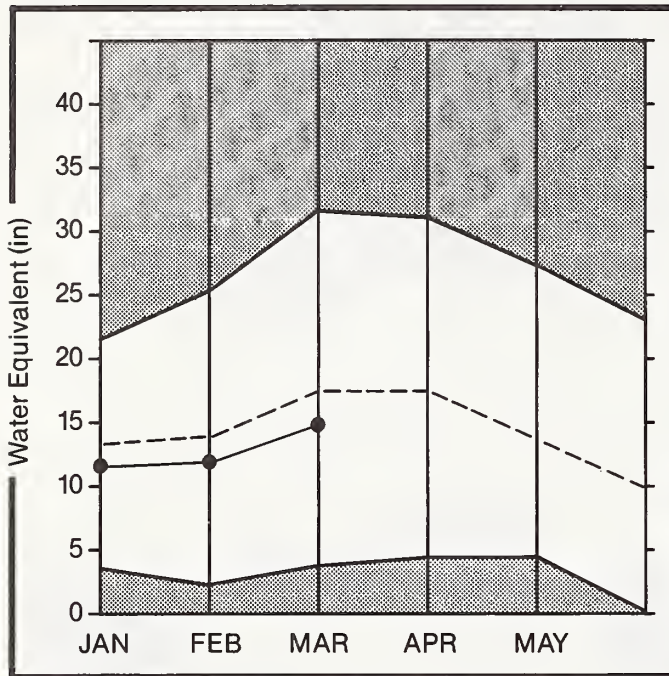
FORECAST POINT	FORECAST PERIOD	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	WET SUBS. (1000AF)	DRY SUBS. (1000AF)	REAS. MAX. (1000AF)	REAS. MIN. (1000AF)	25 YR. AVG. (1000AF)
SIMILKAMEEN R. nr Nighthawk	APR-SEP	1100	77	-332.0	-332.0	1490	715	1432
	APR-JUL	1020	77	-313.0	-313.0	1380	660	1333
	APR-JUN	870	77	-258.0	-258.0	1170	565	1128
OKANOGAN R. nr Tonasket	APR-SEP	1260	76	-401.0	-401.0	1870	645	1661
	APR-JUL	1140	76	-361.0	-361.0	1700	585	1501
	APR-JUN	950	76	-305.0	-305.0	1410	485	1255
METHOW RIVER nr Pateros	APR-SEP	830	85	-150.0	-150.0	1150	505	980
	APR-JUL	765	84	-142.0	-142.0	1060	465	907
	APR-JUN	630	85	-119.0	-119.0	905	395	769

RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS		
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR. AVERAGE
		THIS YEAR	LAST YEAR	AVG.			
CONCONULLY LAKE (SALMON)	10.5	8.0	7.4	8.0	Okanogan River	28	112 81
CONCONULLY RESERVOIR	13.0	6.6	5.5	6.0	Methow River	4	100 69

WET SUBS. and DRY SUBS. represent 150 and 50 percent subsequent precipitation events respectively.
 REAS. MAX. and REAS. MIN. forecasts are for 10% and 90% exceedance levels with the exception of (1) below.
 (1) - REAS. MAX. and REAS. MIN. forecasts are for 5% and 95% exceedance levels.
 (2) - Corrected for upstream diversions or changes in reservoir storage.

WENATCHEE AND CHELAN

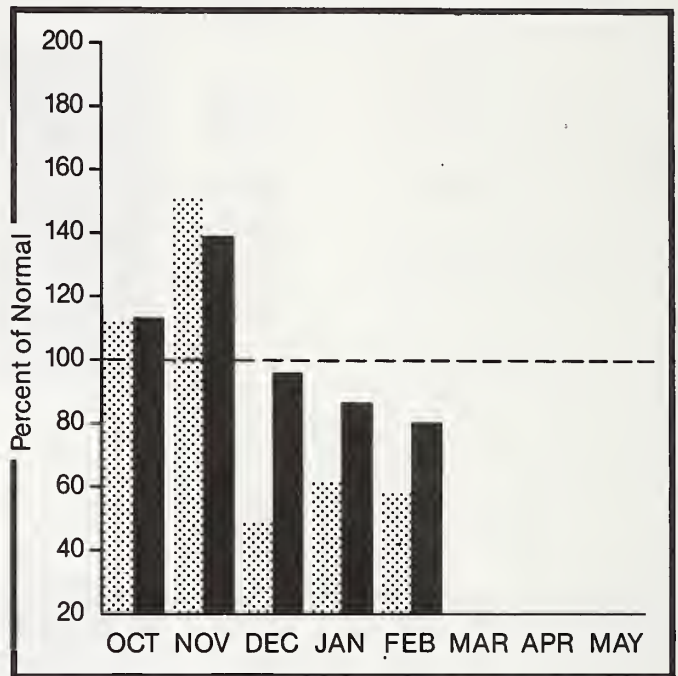
Mountain snowpack* (inches)



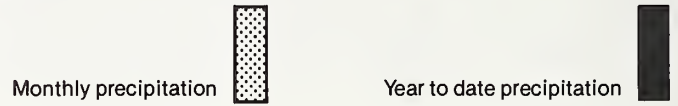
*Based on selected stations



Precipitation* (percent of normal)



*Based on selected stations



WENATCHEE AND CHELAN RIVER BASINS

WATER SUPPLY OUTLOOK:

Runoff for the Wenatchee River is forecast to be 91% of normal for the summer, down from 103% last month. Forecasts in the Chelan River runoff are for 87% down from 95% average. February streamflow within the basin was 69% of normal on the Wenatchee and 85% on the Chelan River. Precipitation during February was 57% of normal in the basin and 80% from October 1 to March 1. Reservoir storage in Lake Chelan is 239,300 acre feet or 148% of March 1 average and 35% of capacity. Snowpack in the Wenatchee-Chelan Basin is 85% of normal. Lyman Lake SNOTEL had the most snow water with 49.0 inches on March 1.

For more information contact your local Soil Conservation Service office.

WENATCHEE - CHELAN RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	WET SUBS. (1000AF)	DRY SUBS. (1000AF)	REAS. MAX. (1000AF)	REAS. MIN. (1000AF)	25 YR. AVG. (1000AF)
CHELAN RIVER at Chelan 1	APR-SEP	1030	87			1220	830	1182
	APR-JUL	905	87			1070	740	1040
	APR-JUN	710	87	-105.0	-105.0	865	555	815
STEHEKIN R. at Stehekin	APR-SEP	775	92			885	665	844
	APR-JUL	635	92	-59.0	-59.0	750	560	714
	APR-JUN	495	91	-46.0	-46.0	565	425	541
ENTIAT RIVER nr Ardenvoir	APR-SEP	210	90			255	163	233
	APR-JUL	200	90	-21.0	-21.0	245	156	221
	APR-JUN	155	91	-16.0	-16.0	189	121	171
WENATCHEE RIVER at Plain	APR-SEP	1150	91	1300	1000	1560	745	1270
	APR-JUL	1010	91	1130	890	1370	655	1113
	APR-JUN	820	91	910	710	1110	530	899
STEMILT nr Wenatchee (miners in)	MAY-SEP	124	90	-14.0	-14.0	168	80	138
ICICLE CREEK nr Leavenworth	APR-SEP	325	88	360	290	445	205	370
	APR-JUL	300	88	325	265	410	191	340
	APR-JUN	240	89	260	215	325	154	270
COLUMBIA R. b1 Rock Island Dam 2	APR-SEP	67100	93	-5150.0	-5150.0	78700	55500	72250
	APR-JUL	56900	93	-4150.0	-4150.0	66700	47100	61050
	APR-JUN	44400	93	-3330.0	-3330.0	52000	36800	47730

RESERVOIR STORAGE (1000AF)

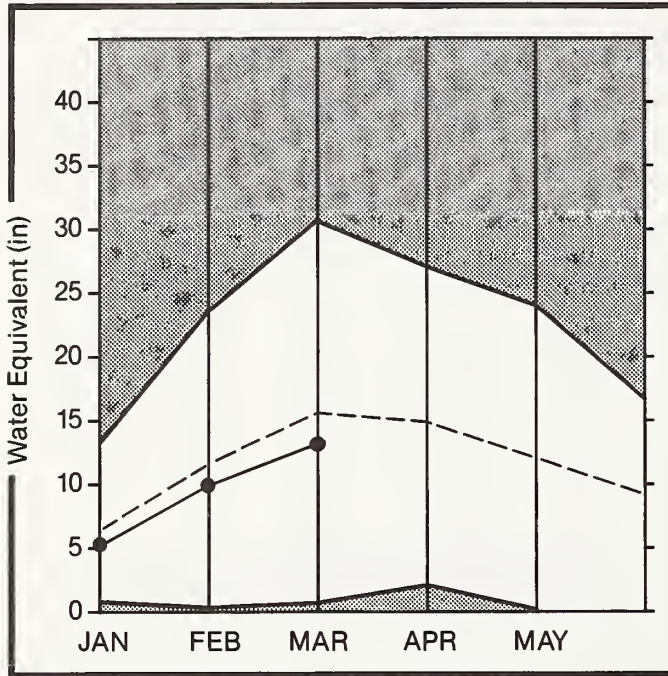
WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF	
		THIS YEAR	LAST YEAR	AVG.			LAST YR.	AVERAGE
CHELAN LAKE	676.1	239.3	91.9	168.1	Chelan Lake Basin	5	97	86
					Entiat River	2	107	101
					Wenatchee River	7	102	85
					Colockum Creek	1	66	47
					Squilchuck Creek	1	133	97
					Stemilt Creek	2	120	81

WET SUBS. and DRY SUBS. represent 150 and 50 percent subsequent precipitation events respectively.
 REAS. MAX. and REAS. MIN. forecasts are for 10% and 90% exceedance levels with the exception of (1) below.
 (1) - REAS. MAX. and REAS. MIN. forecasts are for 5% and 95% exceedance levels.
 (2) - Corrected for upstream diversions or changes in reservoir storage.

YAKIMA

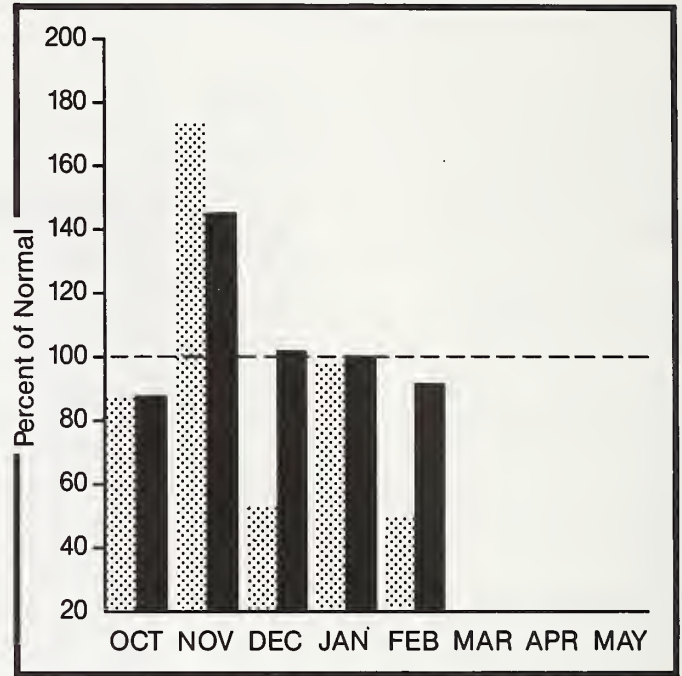
Mountain snowpack* (inches)



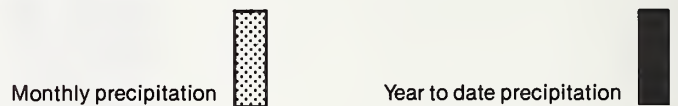
*Based on selected stations



Precipitation* (percent of normal)



*Based on selected stations



YAKIMA RIVER BASIN

WATER SUPPLY OUTLOOK:

March 1 reservoir storage for the five major reservoirs was at 542,600 acre feet or 78% of normal, up from 495,100 acre feet last month. Forecasts for the Yakima Basin runoff vary throughout the basin as follows: the Yakima River at Cle Elum 86% down from 101% last month, Naches River 79% down from 89%, the Yakima River at Parker 79% down from 96% and Ahtanum Creek 77%. February streamflow for the Yakima Basin was 63% of normal. Snowpack is 85% of average in the Yakima Basin based upon 22 snow course and SNOTEL readings. February precipitation was 49% of normal and 91% for the water year-to-date. Temperatures were ten degrees below the February average.

For more information contact your local Soil Conservation Service office.

YAKIMA RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	WET SUBS. (1000AF)	DRY SUBS. (1000AF)	REAS. MAX. (1000AF)	REAS. MIN. (1000AF)	25 YR. AVG. (1000AF)
YAKIMA RIVER at Martin 1	APR-SEP	118	87	118	118	133	103	136
	APR-JUL	109	87	109	109	123	95	126
	APR-JUN	97	87			109	85	112
YAKIMA RIVER at Cle Elum 2	APR-SEP	815	86			920	710	951
	APR-JUL	725	86	-121.0	-121.0	820	630	846
	APR-JUN	630	86	-105.0	-105.0	710	550	735
YAKIMA RIVER nr Parker 2	APR-SEP	1630	79			2070	1190	2075
	APR-JUL	1460	78	-402.0	-402.0	1850	1070	1862
	APR-JUN	1280	78	-363.0	-363.0	1630	935	1643
KACHESS RIVER nr Easton 1	APR-SEP	110	83			127	93	133
	APR-JUL	94	82	-20.0	-20.0	109	79	114
	APR-JUN	84	82	-18.0	-18.0	97	71	102
CLE ELUM RIVER nr Roslyn 1	APR-SEP	415	90			470	360	459
	APR-JUL	375	90	-42.0	-42.0	425	325	417
	APR-JUN	320	91	-33.0	-33.0	360	280	353
BUMPING RIVER nr Nile 1	APR-SEP	118	85			149	87	139
	APR-JUL	108	84	-20.0	-20.0	136	80	128
	APR-JUN	89	84	-17.0	-17.0	112	66	106
AMERICAN RIVER nr Nile	APR-SEP	99	82			124	74	121
	APR-JUL	92	82	-20.0	-20.0	116	68	112
	APR-JUN	77	82	-17.0	-17.0	97	57	94
TIETON RIVER at Tieton 1	APR-SEP	195	80			250	139	244
	APR-JUL	166	80			215	118	208
	APR-JUN	134	80			173	95	168
NACHES RIVER nr Naches 2	APR-SEP	680	79			880	480	860
	APR-JUL	615	79			795	435	779
	APR-JUN	525	79			680	370	667
AHTANUM CREEK nr Tampico 2	APR-SEP	36	77			54	18.1	47
	APR-JUL	33	77	-10.0	-10.0	49	16.7	43
	APR-JUN	28	76	-9.0	-9.0	42	13.9	37

RESERVOIR STORAGE (1000AF)

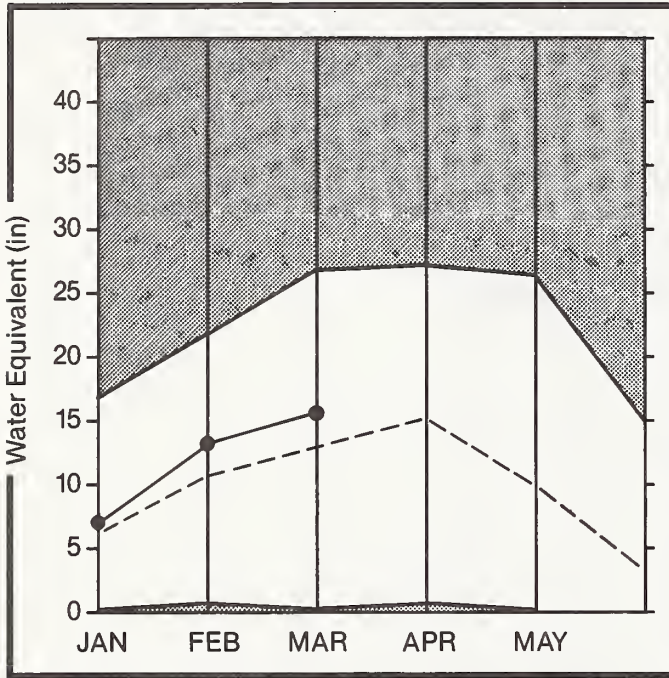
WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF	
		THIS YEAR	LAST YEAR	AVG.			LAST YR.	AVERAGE
KEECHELUS	157.8	107.0	43.1	105.0	Yakima River	18	119	85
KACHESS	239.0	104.4	49.5	179.0	Ahtanum Creek	2	106	99
CLE ELUM	436.9	230.4	52.4	273.0				
BUMPING LAKE	33.7	9.2	10.4	10.0				
RIMROCK	198.0	91.6	60.8	130.0				

WET SUBS. and DRY SUBS. represent 150 and 50 percent subsequent precipitation events respectively.
 REAS. MAX. and REAS. MIN. forecasts are for 10% and 90% exceedance levels with the exception of (1) below.
 (1) - REAS. MAX. and REAS. MIN. forecasts are for 5% and 95% exceedance levels.
 (2) - Corrected for upstream diversions or changes in reservoir storage.

WALLA WALLA

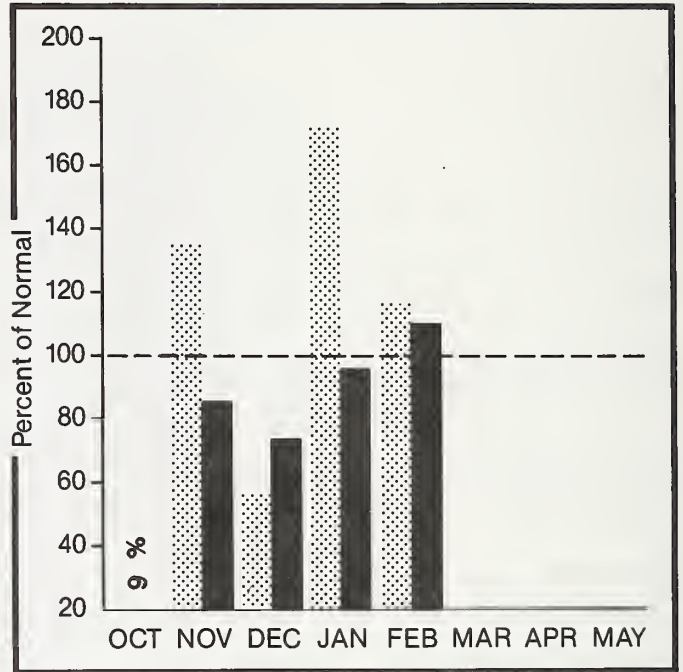
Mountain snowpack* (inches)



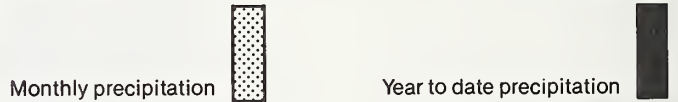
*Based on selected stations



Precipitation* (percent of normal)



*Based on selected stations



WALLA WALLA RIVER BASIN

WATER SUPPLY OUTLOOK:

March 1 snowpack in the Walla Walla River Basin is 120% of normal. February precipitation was 116% of average bringing the water year-to-date precipitation to 109% of normal. Water content at the Touchet SNOTEL site was 34.8 inches on March 1 up from 32.6 inches last month. The forecast calls for 106% of average streamflow in the Walla Walla River for the coming summer. Streamflow for the Snake River was at 44% of normal for February and 71% on the Walla Walla River. Temperatures were 12 degrees below average for February.

For more information contact your local Soil Conservation Service office.

WALLA WALLA RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	WET SUBS. (1000AF)	DRY SUBS. (1000AF)	REAS. MAX. (1000AF)	REAS. MIN. (1000AF)	25 YR. AVG. (1000AF)
MILL CREEK at Walla Walla	APR-SEP	17.5	100	21	14.5	23	12.4	17.5
	APR-JUL	17.3	100	21	14.4	22	12.3	17.3
	APR-JUN	17.1	100	21	14.2	22	12.1	17.1
SF WALLA WALLA nr Milton Freewater	APR-JUL	57	104	66	47	68	46	55
COUSE CK nr Milton Freewater	APR-JUL	3.8	106	5.5	2.1	5.1	2.5	3.6
PINE CREEK nr Weston	APR-JUL	2.9	107	0.2	0.2	3.8	2.0	2.7
COLUMBIA R. at The Dalles 2	APR-SEP	92500	91	-8.8	-8.8	111000	75300	101801
	APR-JUL	79400	91	-7700.0	-7700.0	95100	63700	87100
	APR-JUN	64100	91	-6370.0	-6370.0	76800	51400	70470

RESERVOIR STORAGE

(1000AF)

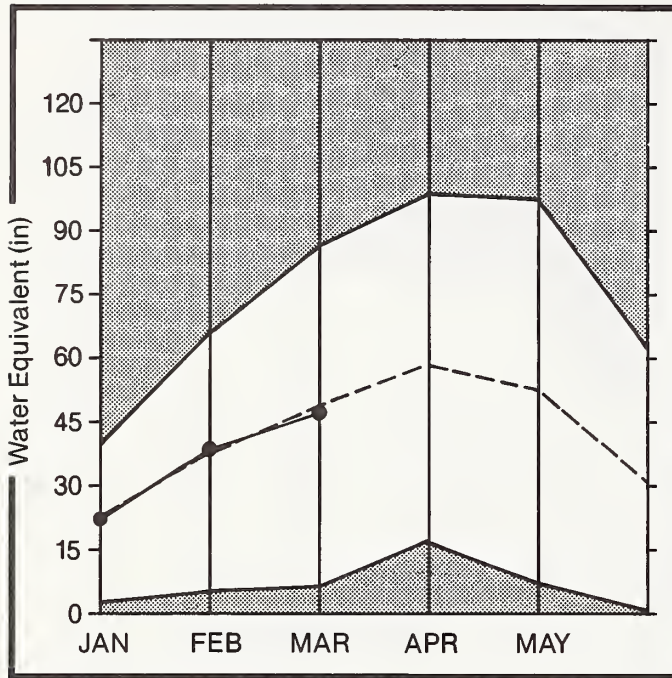
WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **	THIS YEAR	LAST YEAR	AVG.	WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR. AVERAGE
						Mill Creek	1	218 120

WET SUBS. and DRY SUBS. represent 150 and 50 percent subsequent precipitation events respectively.
 REAS. MAX. and REAS. MIN. forecasts are for 10% and 90% exceedance levels with the exception of (1) below.
 (1) - REAS. MAX. and REAS. MIN. forecasts are for 5% and 95% exceedance levels.
 (2) - Corrected for upstream diversions or changes in reservoir storage.

COWLITZ AND LEWIS

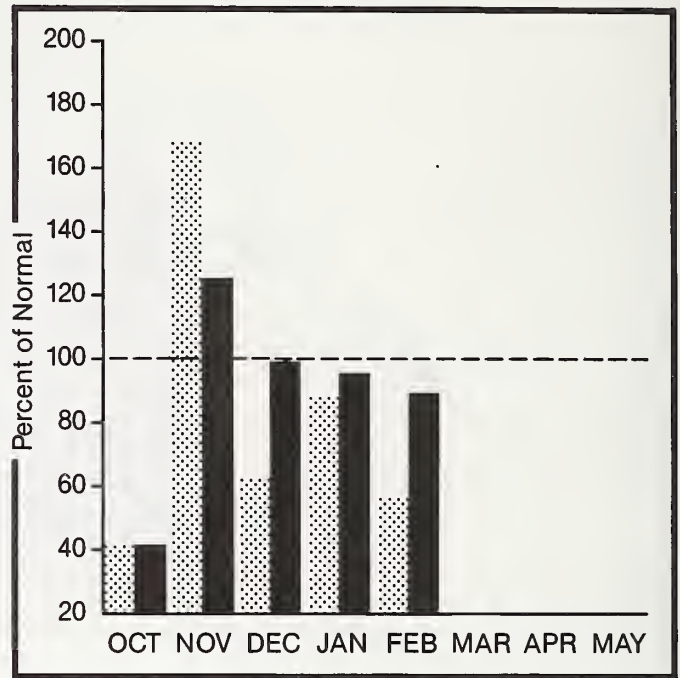
Mountain snowpack* (inches)





*Based on selected stations

Maximum  Average 
 Minimum  Current 

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation  Year to date precipitation 

COWLITZ - LEWIS RIVER BASINS

WATER SUPPLY OUTLOOK:

Summer runoff forecasts for the Lewis River are 105% and for the Cowlitz River 96%. February precipitation was 56% of normal bringing the water year-to-date precipitation to 88% of average. March 1 snow cover for the Cowlitz-Lewis Basin is 96% of normal, down from 103% last month. The Cayuse Pass snow course has the maximum water content for the basin with 67.6 inches of water on March 1. Temperatures were seven degrees below normal for February.

For more information contact your local Soil Conservation Service office.

COWLITZ - LEWIS RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	WET SUBS. (1000AF)	DRY SUBS. (1000AF)	REAS. MAX. (1000AF)	REAS. MIN. (1000AF)	25 YR. AVG. (1000AF)
LEWIS RIVER at Ariel 2	APR-SEP	1310	105	1460	1170	1680	935	1244
	APR-JUL	1140	103	56	56	1470	815	1084
	APR-JUN	1010	105	52	52	1300	725	958
COWLITZ R. bl Mayfield Dam 2	APR-SEP	1960	96	-76.0	-76.0	2670	1250	2036
	APR-JUL	1720	97	-62.0	-62.0	2340	1100	1782
	APR-JUN	1480	97	-44.0	-44.0	2010	945	1524
COWLITZ R. at Castle Rock 2	APR-SEP	2530	94	-157.0	-157.0	3470	1590	2687
	APR-JUL	2210	94	-133.0	-133.0	3030	1390	2343
	APR-JUN	1920	95	-95.0	-95.0	2630	1210	2015

RESERVOIR STORAGE (1000AF)

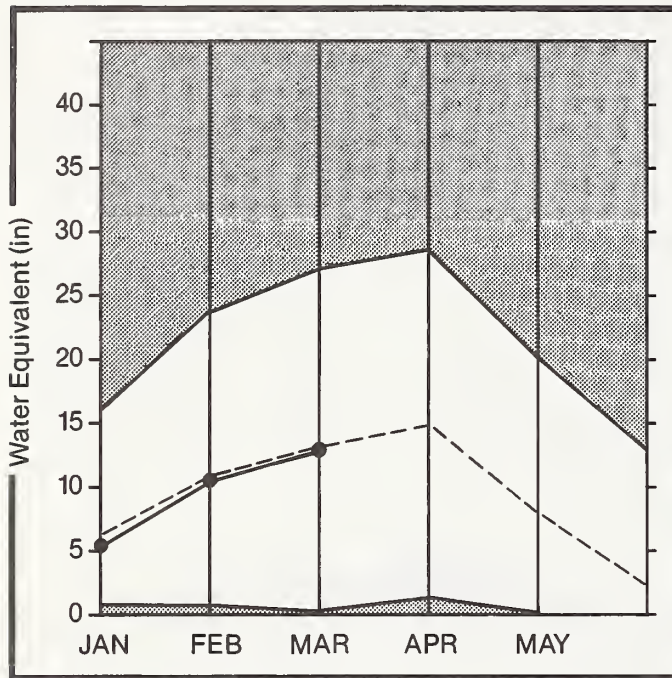
WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF	
		THIS YEAR	LAST YEAR	AVG.			LAST YR.	AVERAGE
					Cowlitz River	2	142	96
					Lewis River	2	126	112

WET SUBS. and DRY SUBS. represent 150 and 50 percent subsequent precipitation events respectively.
 REAS. MAX. and REAS. MIN. forecasts are for 10% and 90% exceedance levels with the exception of (1) below:
 (1) - REAS. MAX. and REAS. MIN. forecasts are for 5% and 95% exceedance levels.
 (2) - Corrected for upstream diversions or changes in reservoir storage.

WHITE - GREEN

Mountain snowpack* (inches)



*Based on selected stations

Maximum



Average



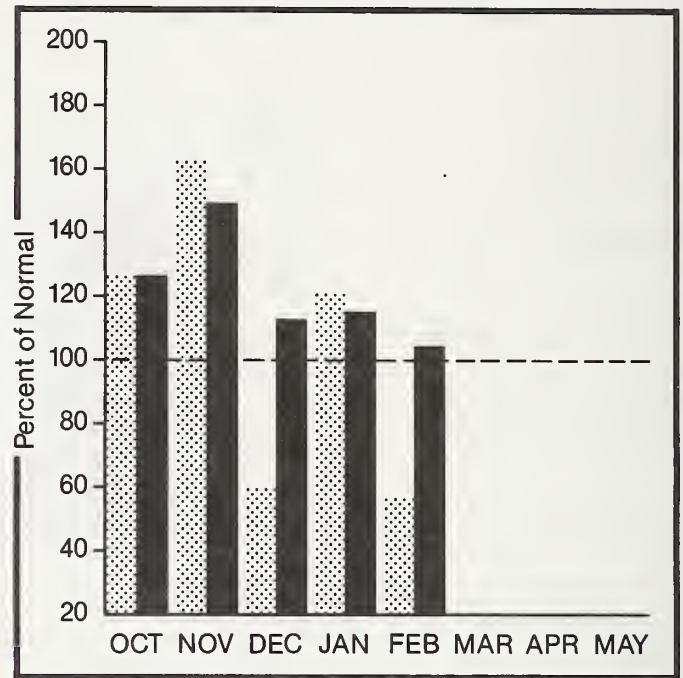
Minimum



Current



Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation



Year to date precipitation



WHITE - GREEN RIVER BASINS

WATER SUPPLY OUTLOOK:

March 1 snowpack is 98% of normal for the basin, down from 107% last month. February precipitation was 56% of normal bringing the water year-to-date to 104% of average. Summer runoff is forecasted to be 101% on the Green River and 100% of normal and Cedar River. Snow depth at the Corral Pass snow course was 91 inches with 33.7 inches of water content on March 1. Temperatures were seven degrees below average for February.

For more information contact your local Soil Conservation Service office.

WHITE - GREEN RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	WET SUBS. (1000AF)	DRY SUBS. (1000AF)	REAS. MAX. (1000AF)	REAS. MIN. (1000AF)	25 YR. AVG. (1000AF)
GREEN RIVER bl Howard Hanson Dam 2	APR-SEP	295	101	345	245	370	220	291
	APR-JUL	265	102	310	220	330	200	261
	APR-JUN	240	102	315	157	300	181	236
CEDAR RIVER nr Cedar Falls	APR-SEP	93	100	125	61	116	70	93

RESERVOIR STORAGE

(1000AF)

WATERSHED SNOWPACK ANALYSIS

RESERVOIR

USEABLE CAPACITY
|
|
|

** USEABLE STORAGE **
THIS YEAR LAST YEAR AVG.
|
|
|

WATERSHED

NO. COURSES
AVG'D

THIS YEAR AS % OF
LAST YR. AVERAGE

White River

2

137

98

Green River

2

141

92

Cedar River

2

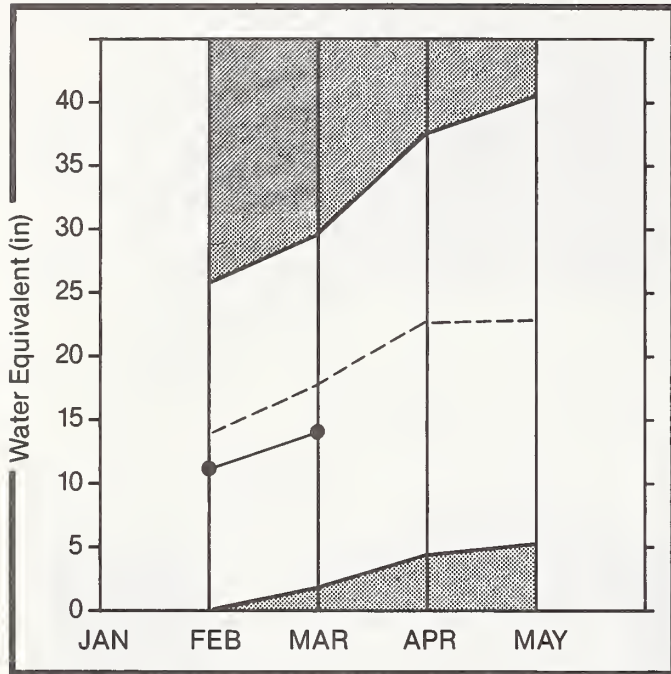
168

114

WET SUBS. and DRY SUBS. represent 150 and 50 percent subsequent precipitation events respectively.
REAS. MAX. and REAS. MIN. forecasts are for 10% and 90% exceedance levels with the exception of (1) below.
(1) - REAS. MAX. and REAS. MIN. forecasts are for 5% and 95% exceedance levels.
(2) - Corrected for upstream diversions or changes in reservoir storage.

OLYMPIC

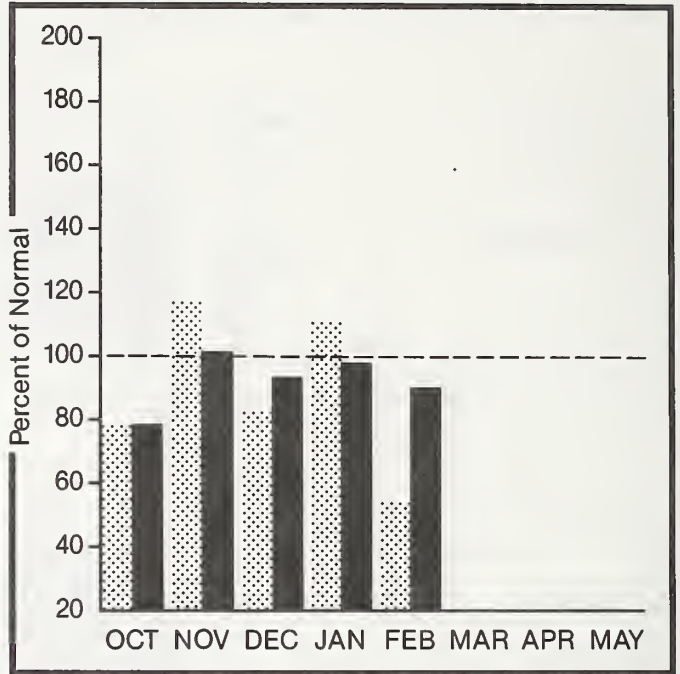
Mountain snowpack* (inches)





*Based on selected stations

Maximum  Average 
Minimum  Current 

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation  Year to date precipitation 

OLYMPIC PENINSULA RIVER BASIN

WATER SUPPLY OUTLOOK:

February precipitation was 54% of average, with the Quillayute weather service office recording 6.22 inches of precipitation during February. The water year-to-date precipitation accumulation is 89% of normal, down from 97% last month. The February 1 snow cover was 77% of normal in the Olympic basins. Forecasts of runoff for streamflow in the basin are for 84% of average on the Dungeness River, down from 95% last month and 86% for the Elwah River. The maximum recorded snowpack was at the Cox Valley snow course where 77 inches of snow contained 26.8 inches of water. Average water content at this site is 32.9 inches for March 1. Temperatures were seven degrees below normal for February.

For more information contact your local Soil Conservation Service office.

OLYMPIC PENINSULA RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	WET SUBS. (1000AF)	DRY SUBS. (1000AF)	REAS. MAX. (1000AF)	REAS. MIN. (1000AF)	25 YR. AVG. (1000AF)
DUNGENESS RIVER nr Sequim	APR-SEP	133	84	157	109	162	104	159
	APR-JUL	108	84	129	87	131	85	129
	APR-JUN	81	84	-16.0	-16.0	98	64	97
ELWHA RIVER nr Port Angeles	APR-SEP	475	86	525	425	575	375	553
	APR-JUL	395	87	435	355	475	315	454

RESERVOIR STORAGE

(1000AF)

WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF	
		THIS YEAR	LAST YEAR	AVG.			LAST YR.	AVERAGE
					Dungeness River	1	83	79
					Morse Creek	1	81	81
					Elwha River	1	84	78

WET SUBS. and DRY SUBS. represent 150 and 50 percent subsequent precipitation events respectively.

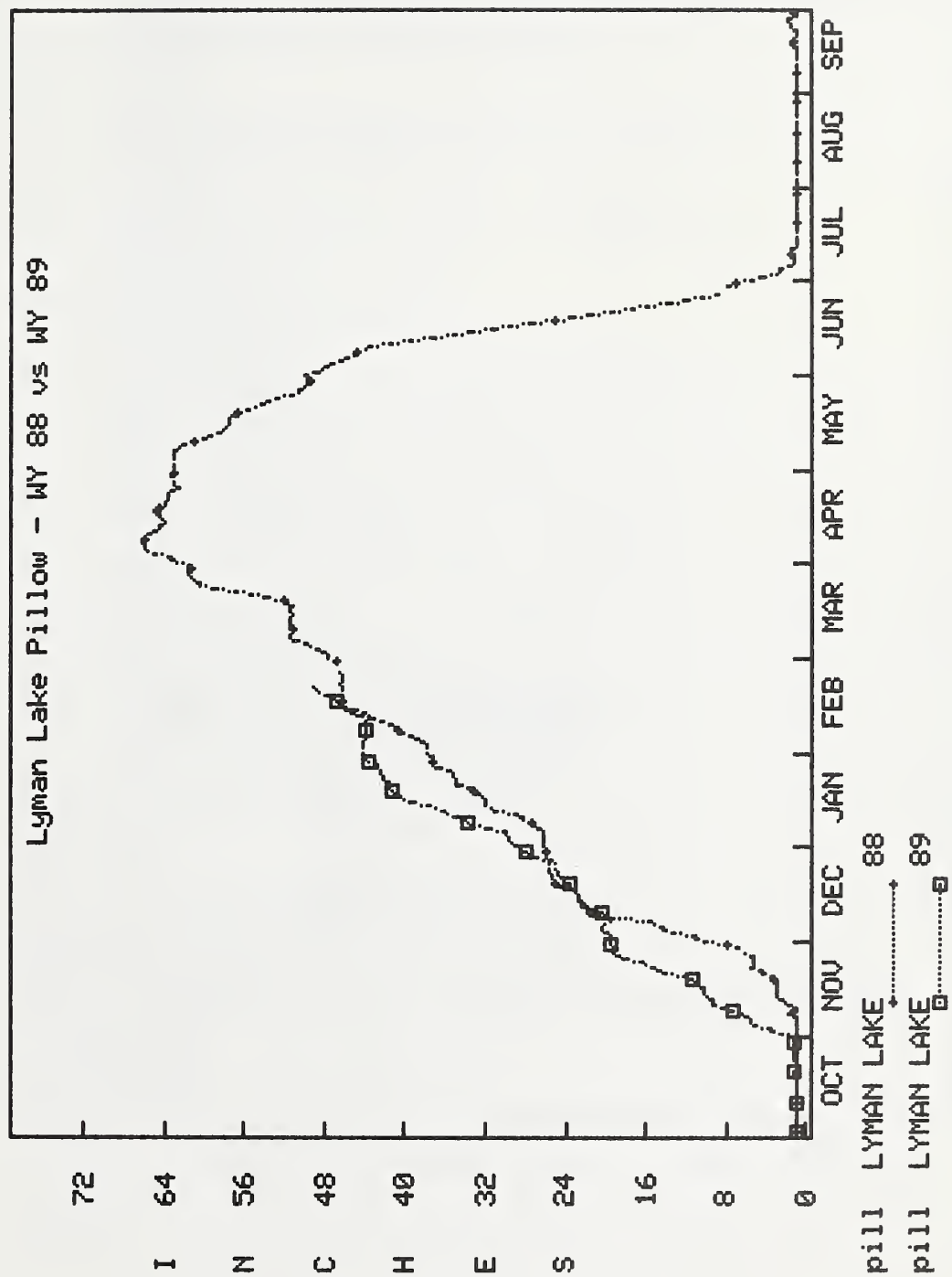
REAS. MAX. and REAS. MIN. forecasts are for 10% and 90% exceedance levels with the exception of (1) below.

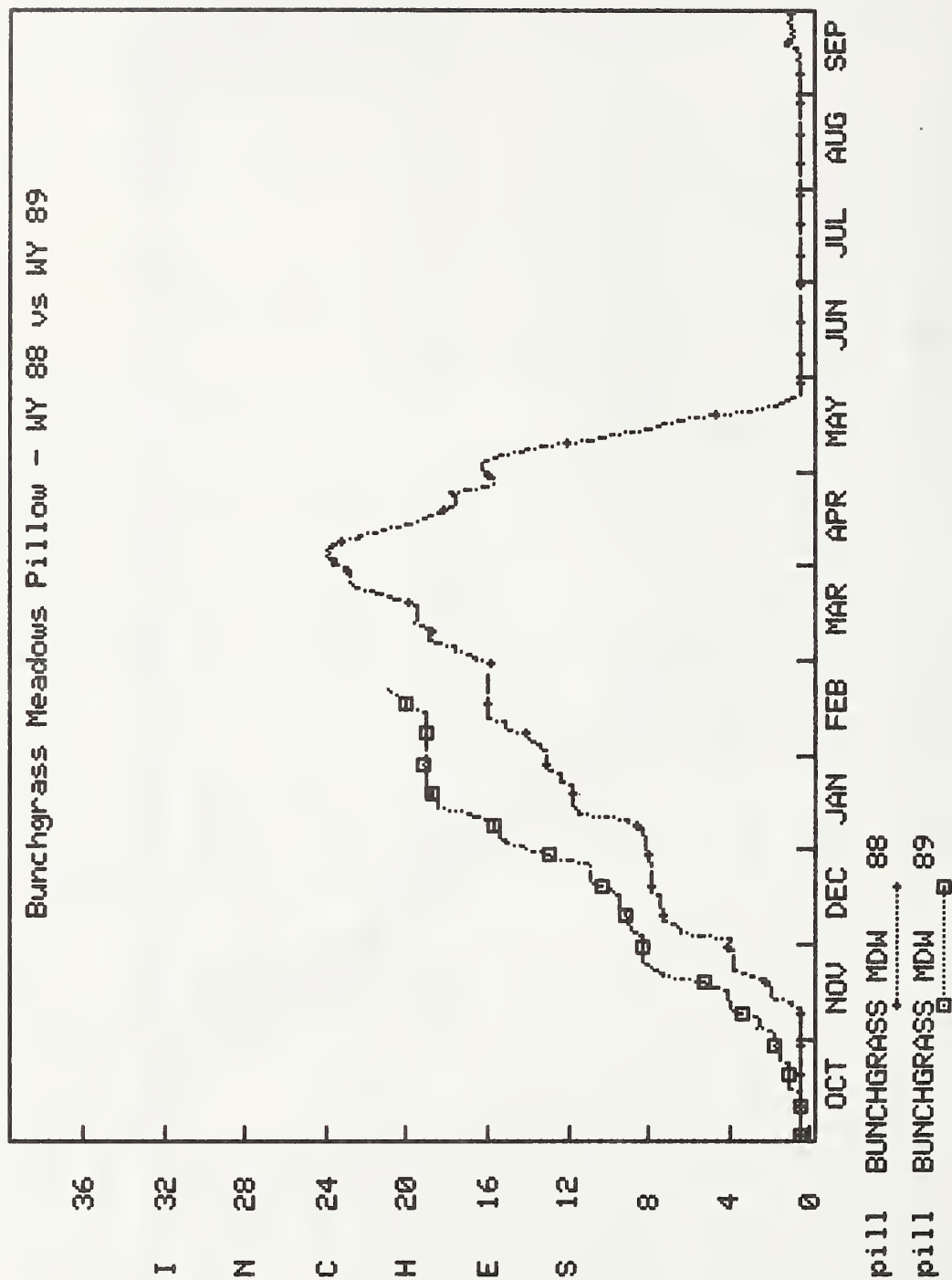
(1) - REAS. MAX. and REAS. MIN. forecasts are for 5% and 95% exceedance levels.

(2) - Corrected for upstream diversions or changes in reservoir storage.

MARCH 1989

OUNGENESS RIVER						
DEER PARK	5200	2/28/89	39	12.5	15.1	17.9
COX VALLEY	4500	2/27/89	77	26.8	33.2	32.9
NUPRICANE	4500	2/26/89	46	14.0	16.6	17.9





The Following Organizations Cooperate With The Soil Conservation Service In Snow Survey Work

Canada: Ministry of the Environment, Water
Investigations Branch, Victoria, British Columbia

States: Washington State Department of Ecology
Washington State Department of Natural Resources

Federal: Department of the Army
Corps of Engineers
U.S. Department of Agriculture
Forest Service
U.S. Department of Commerce
NOAA, National Weather Service
U.S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service
Bureau of Indian Affairs

Local: City of Tacoma
City of Seattle
Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company
Snohomish County P.U.D.
Colville Confederated Tribes
Spokane County

Private: Okanogan Irrigation District
Wenatchee Heights Irrigation District
Newman Lake Homeowners Association

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ROOM 360, U.S. COURT HOUSE
SPOKANE, WASHINGTON 99201

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

THIRD-CLASS BULK RATE
POSTAGE AND FEES PAID
USDA · SCS
SPOKANE, WA
PERMIT NO G-267

THIRD CLASS MAIL

U. S. DEPT. OF AGRICULTURE
NATIONAL AGRICUL. LIBRARY
CURRENT SERIAL RECORDS
BELTSVILLE, MD 20705

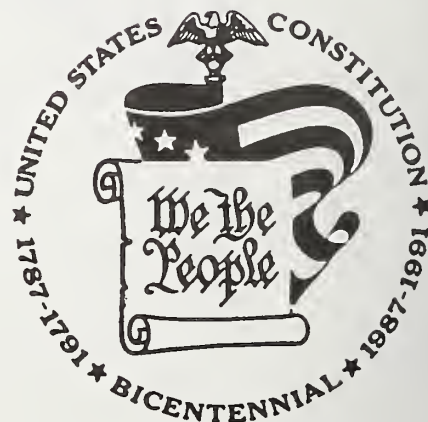
**Washington
Water Supply Outlook**

and

Federal — State — Private
Cooperative Snow Surveys



SOIL CONSERVATION SERVICE



☆ GPO 1989 591-071